



深圳市星源创科技有限公司

SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

天线测试报告

Antenna Test Report

TC: 昱科

MN: A1515

RF: 戴进平

MD: 黄清清

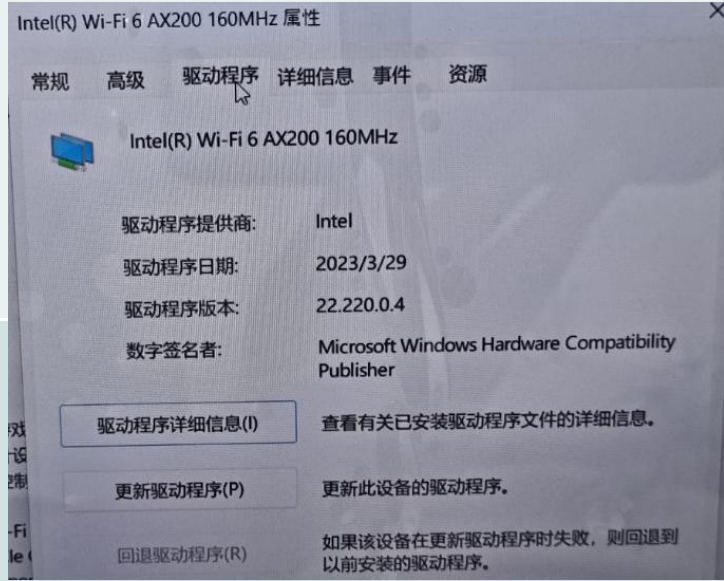
MP: 19918388579

Date: 2024. 07. 02

REV :V1. 0

测试信息

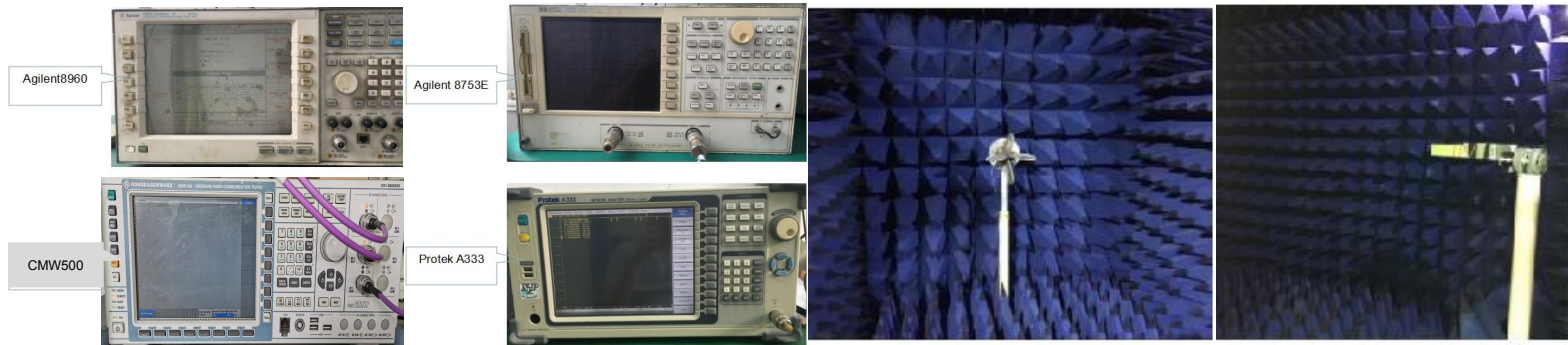
Test information

WIFI ANT Test information		
Frequency	2. 4G (2402~2483) Mhz	5G (5150~5850) Mhz
Module information		
Driver version information		

测试环境

Test environment

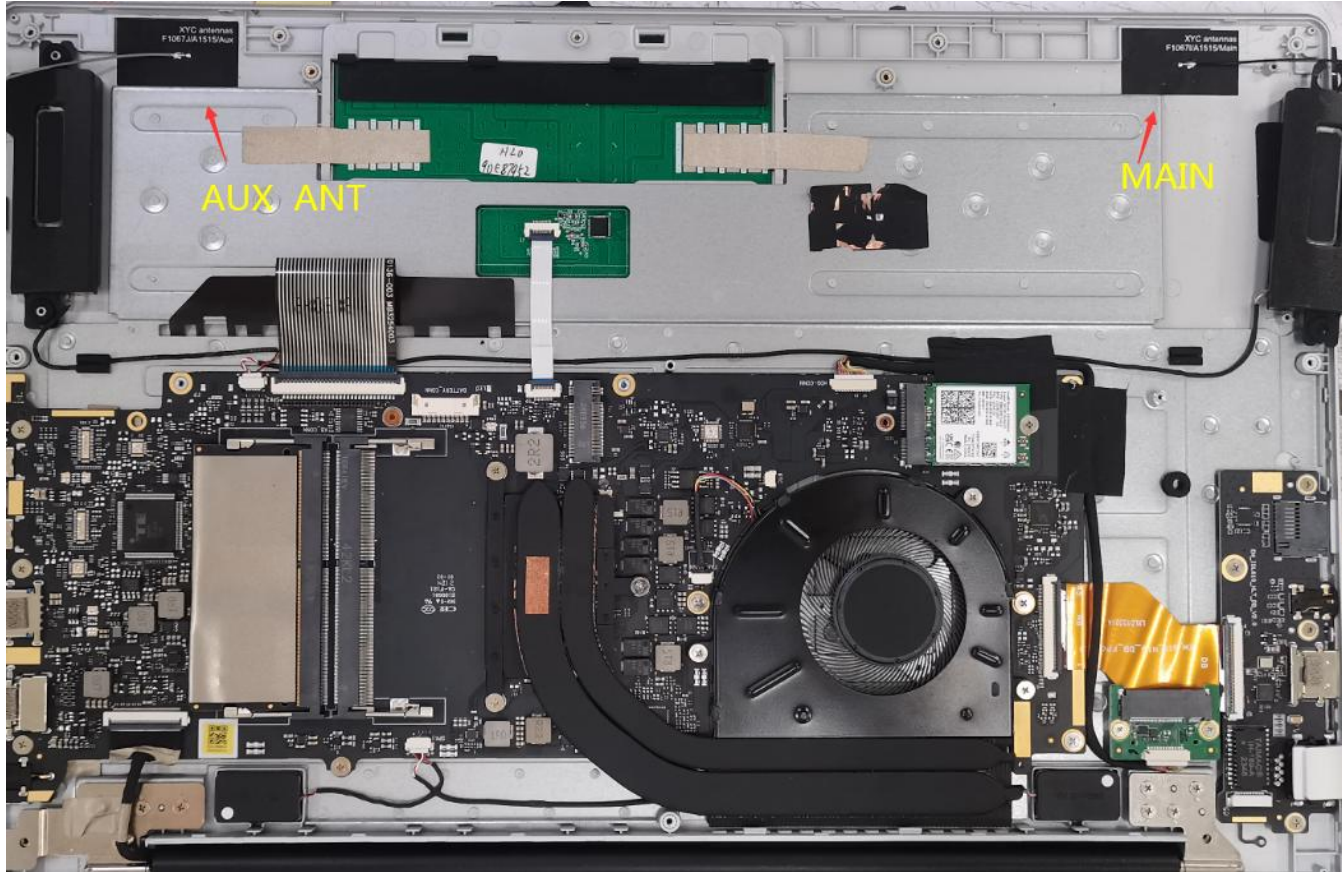
	测试项目	测试设备
S参数 (S-parameter)	1. 电压驻波比 (VSWR) 2. 回波损耗 (Rrtun Loss)	网络分析仪: Agilent8753ES
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS) 3. 屏灭/屏亮	1. 暗室: 5*3*3m (3D) Chamber 2. 综测仪: Agilent8960 CMW500
3. 无源测试 (Passive)	1. 天线增益 (Gain) 2. 天线效率 (Efficiency)	1. 暗室: 5*3*3m (3D) Chamber 2. 网络分析仪: Agilent 8753ES



天线位置
Antenna position



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有源测试数据 Active test data

802.11b	Frequency	TRP		TIS	
	2412	CH1 11Mbps	13.26	CH1 11Mbps	-79.22
2437	CH6 11Mbps	13.86	CH6 11Mbps	-79.40	
2467	CH11 11Mbps	12.97	CH11 11Mbps	-79.48	
802.11a		TRP		TIS	
	5180	CH36 6Mbps	12.08	CH36 54Mbps	-74.43
	5300	CH60 6Mbps	12.41	CH60 54Mbps	-74.52
	5805	CH161 6Mbps	11.04	CH161 54Mbps	-74.59

WIFI-吞吐量测试 Throughput test

RVR测试系统(2.4G-AX-40M-2-CH1)

TX		WiFi RvR 测试报表					RX		WiFi RvR 测试报表				
图片	角度\衰减	0dB	10dB	20dB	30dB	40dB	图片	角度\衰减	0dB	10dB	20dB	30dB	40dB
	0.0°	353	344	325	293	142		0.0°	382	375	293	160	75.9
	90.0°	351	352	344	288	156		90.0°	376	376	326	196	80.3
	180.0°	350	351	347	331	232		180.0°	377	379	349	245	116
	270.0°	346	342	324	288	208		270.0°	379	378	299	178	157
	平均	350.00	347.30	335.00	300.00	184.50		平均	378.50	377.00	316.80	194.80	107.30
	方差	2.90	5.00	12.20	20.80	42.50		方差	2.60	1.80	25.90	36.60	37.70
	备注												

WIFI-吞吐量测试 Throughput test

RVR测试系统 (5G-AX-80M-1-CH40)													
TX	WiFi RvR 测试报表					RX	WiFi RvR 测试报表						
图片	角度\衰减	0dB	10dB	20dB	30dB	40dB	图片	角度\衰减	0dB	10dB	20dB	30dB	40dB
	0.0°	948	946	931	397	105		0.0°	951	951	950	729	320
	90.0°	947	948	936	452	109		90.0°	951	950	951	762	310
	180.0°	946	941	545	241	112		180.0°	951	950	861	473	187
	270.0°	948	947	930	753	501		270.0°	951	951	951	946	704
	平均	947.30	945.50	835.50	460.80	206.80		平均	951.00	950.50	928.30	727.50	380.30
	方差	1.00	3.10	193.70	214.40	196.20		方差	0.00	0.60	44.80	194.70	224.10
	备注												



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BT天线实测
BT Antenna test

测试环境：开放空间(通道)

测试工具：蓝牙音响

测试距离：15+m

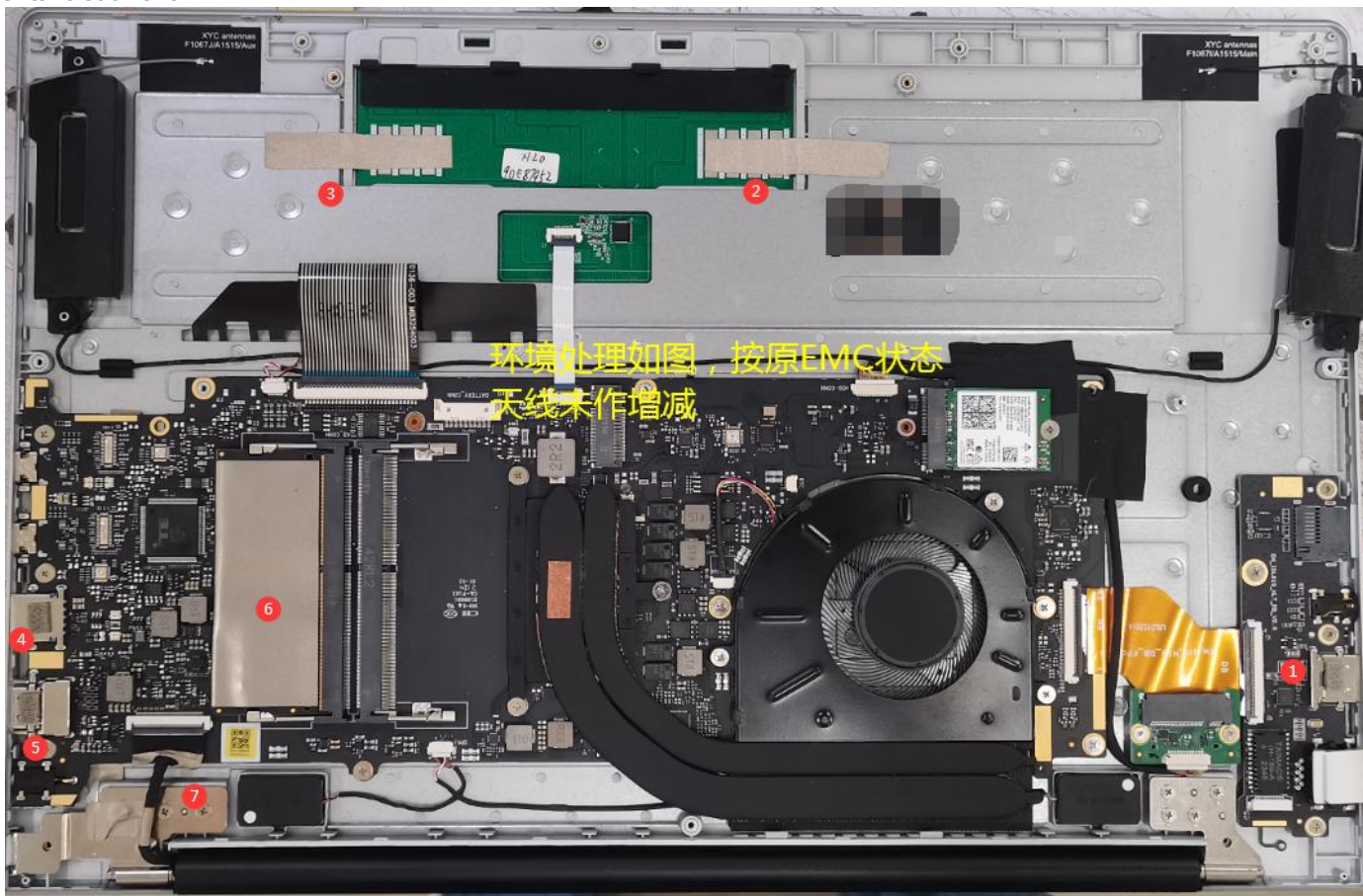
结果：播放音乐流畅，无杂音。

Test environment: Open space (channel)

Test tool: Bluetooth speaker

Test distance: 15+m

Results: The music was played smoothly and without noise.

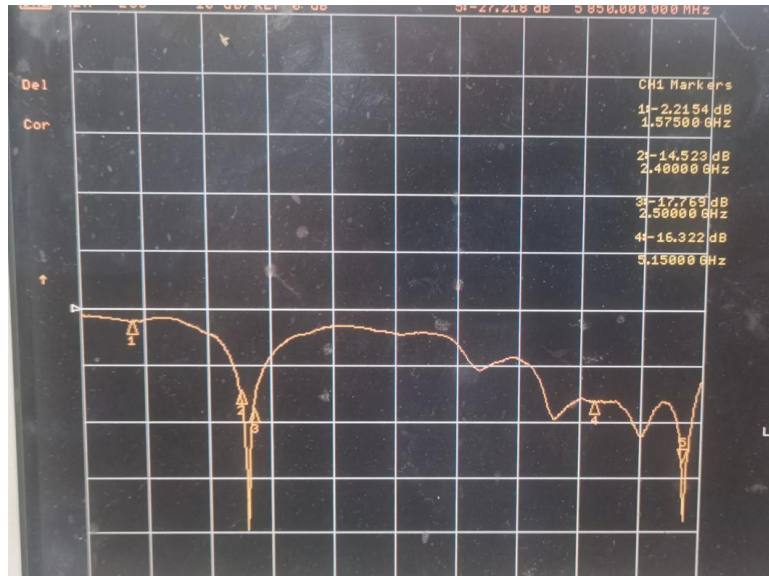
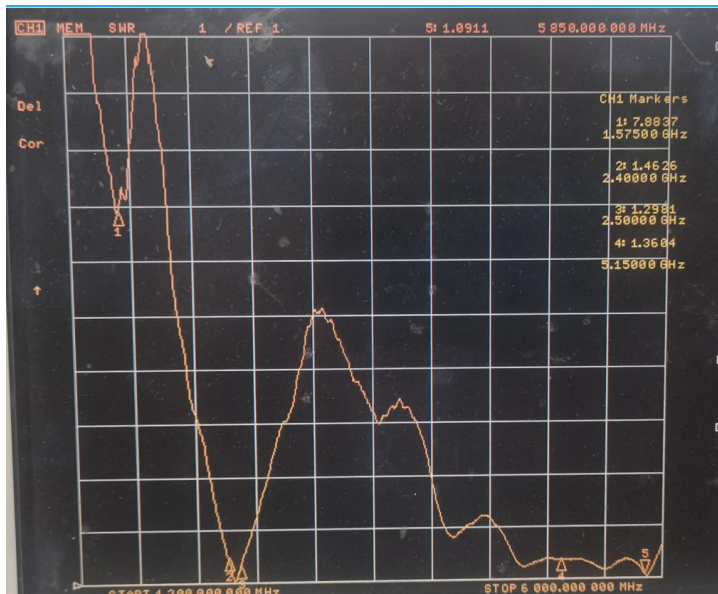






无源测试数据
Passive test data

ANT1 S11-VSWR&Return Loss



Frequency (MHZ)	2400		2500	5150		5850
VSWR	1.46		1.29	1.36		1.09
Return Loss (DB)	-14.53		-17.76	-16.32		-27.20

无源测试数据
Passive test data

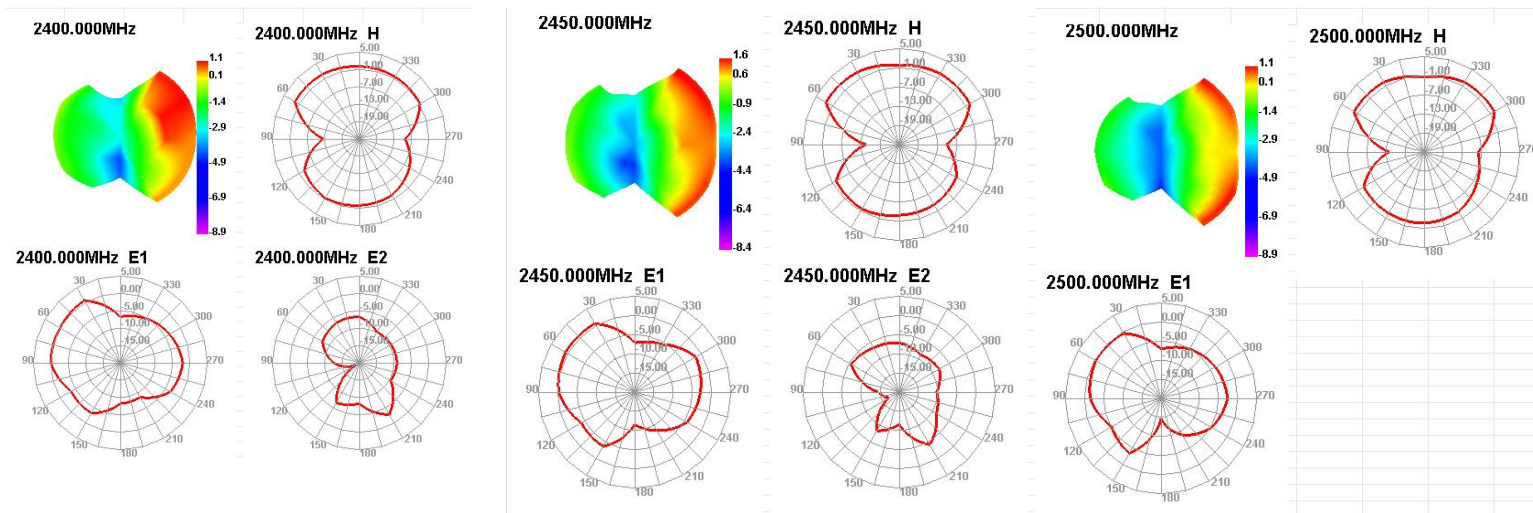
ANT1 GAIN&Efficiency-WIFI2.4G

Passive Test For WIFI2.4												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	55.79	-2.53	1.09	-1.06	29.34	26.449	1.09	-19.02	3.63	60	45.78	46.01
2410	55.55	-2.55	1.36	-0.79	29.607	25.94	1.36	-20.82	3.91	60	46.01	46.29
2420	57.77	-2.38	1.54	-0.61	30.935	26.839	1.54	-19.08	3.93	60	45.73	46
2430	58.35	-2.34	1.6	-0.55	31.482	26.869	1.6	-18.99	3.94	60	46.01	46.36
2440	61.69	-2.1	1.69	-0.46	33.45	28.237	1.69	-17.54	3.79	60	46.12	46.48
2450	62.43	-2.05	1.61	-0.54	34.144	28.286	1.61	-17.06	3.66	60	46.12	46.54
2460	59.9	-2.23	1.26	-0.89	32.705	27.191	1.26	-17.48	3.49	60	46.14	46.52
2470	61.91	-2.08	1.56	-0.59	33.558	28.354	1.56	-16.51	3.64	60	46.4	46.8
2480	65.45	-1.84	1.81	-0.34	35.288	30.162	1.81	-15.87	3.66	60	46.26	46.64
2490	65.52	-1.84	1.7	-0.45	35.306	30.217	1.7	-14.77	3.53	60	46.51	46.91
2500	55.16	-2.58	1.07	-1.08	30.007	25.149	1.07	-14.67	3.66	60	46.47	46.86



无源测试数据 Passive test data

ANT1 Direction of figure(2.4G)

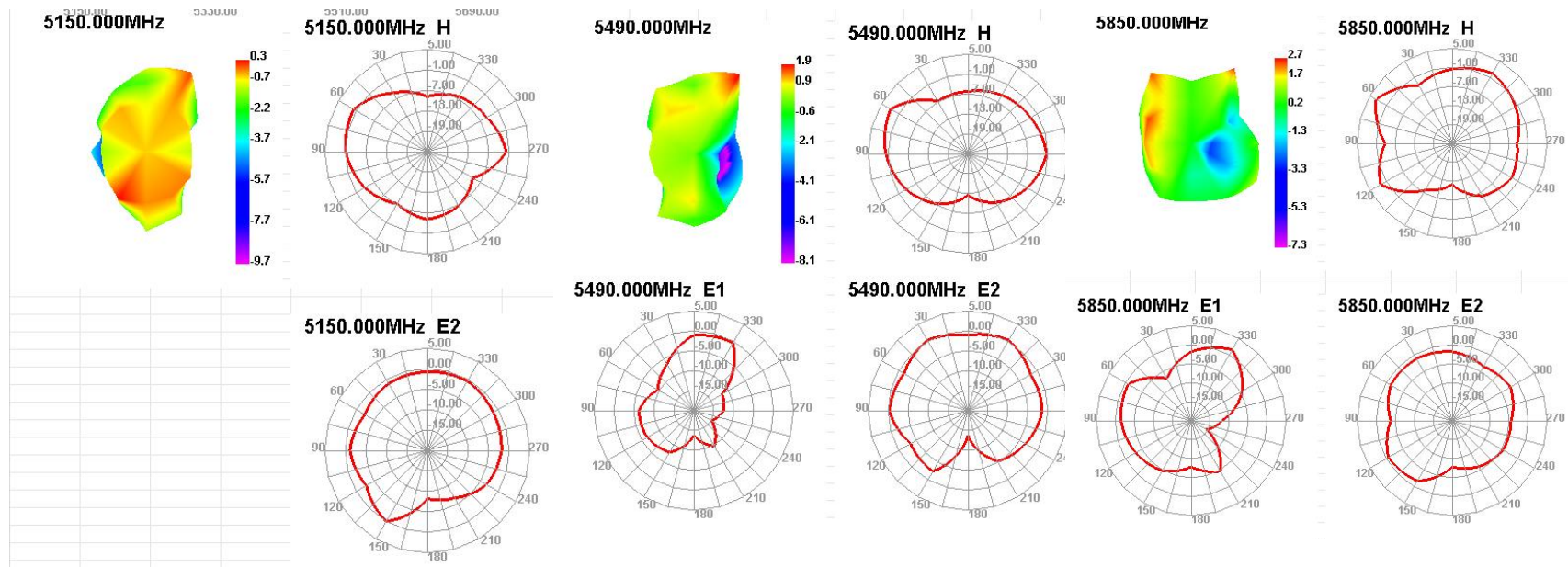


Passive Test For WIFI5G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dEd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beanwidth (3dB)	AttH (dB)	AttV (dB)
5150	41.9	-3.78	0.32	-1.83	25.686	16.211	0.32	-13.16	4.1	60	49.82	49.4
5170	41.89	-3.78	0.58	-1.57	25.703	16.189	0.58	-14.07	4.35	60	50.13	49.77
5190	44.3	-3.54	0.9	-1.25	27.174	17.128	0.9	-13.96	4.44	60	50.42	49.95
5210	47.98	-3.19	1.14	-1.01	29.859	18.117	1.14	-13.83	4.33	60	50.88	50.49
5230	46.25	-3.35	1.35	-0.8	29.378	16.875	1.35	-15.6	4.7	60	50.42	50.08
5250	49.61	-3.04	1.91	-0.24	31.686	17.921	1.91	-17.15	4.95	60	51.02	50.72
5270	51.3	-2.9	2.11	-0.04	32.482	18.816	2.11	-18.29	5.01	60	50.85	50.6
5290	55.13	-2.59	2.7	0.55	35.287	19.842	2.7	-19.4	5.29	60	51.34	51.12
5310	50.8	-2.94	2.66	0.51	32.955	17.844	2.66	-20.91	5.6	60	50.44	50.36
5330	51.3	-2.9	2.83	0.68	33.331	17.972	2.83	-18.71	5.73	60	51.08	51.01
5350	51.2	-2.91	2.59	0.44	32.772	18.433	2.59	-16.58	5.5	30	51.02	51.01
5370	51.12	-2.91	2.33	0.18	32.463	18.658	2.33	-15.05	5.24	60	50.91	50.95
5390	45.85	-3.39	1.69	-0.46	29.147	16.704	1.69	-14.98	5.08	60	50.46	50.43
5410	52.85	-2.77	2.53	0.38	33.402	19.453	2.53	-14.9	5.3	60	51.18	51.09
5430	44.88	-3.48	1.94	-0.21	27.713	17.17	1.94	-14.83	5.42	30	50.69	50.7
5450	49.74	-3.03	2.32	0.17	30.095	19.643	2.32	-15.3	5.35	30	50.71	50.85
5470	47.96	-3.19	1.9	-0.25	28.951	19.009	1.9	-14.82	5.09	30	50.93	50.83
5490	47.46	-3.24	1.91	-0.24	28.635	18.83	1.91	-14.91	5.15	30	50.92	50.79
5510	50.29	-2.99	2.61	0.46	30.469	19.818	2.61	-18.05	5.6	30	51.18	51.16
5530	50.18	-2.99	2.57	0.42	30.366	19.818	2.57	-19.01	5.56	30	51.44	51.3
5550	57.16	-2.43	2.83	0.68	34.694	22.469	2.83	-16.26	5.26	30	51.89	51.76
5570	50.33	-2.98	2.12	-0.03	30.858	19.476	2.12	-15.62	5.1	30	51.42	51.33
5590	54.98	-2.6	2.57	0.42	34.095	20.884	2.57	-16.23	5.17	30	51.71	51.76
5610	48.6	-3.13	1.96	-0.19	30.223	18.376	1.96	-16.88	5.1	30	51.17	51.22
5630	57.59	-2.4	2.39	0.24	35.405	22.183	2.39	-16.46	4.78	30	51.78	51.77
5650	51.01	-2.92	1.62	-0.53	31.289	19.721	1.62	-17.38	4.54	30	51.47	51.55
5670	56.32	-2.49	2.15	0	34.793	21.523	2.15	-21.36	4.64	30	52.12	52.28
5690	51.37	-2.89	1.89	-0.26	31.585	19.79	1.89	-19.23	4.79	30	52.12	52.25
5710	52.32	-2.81	1.97	-0.18	31.295	21.029	1.97	-17.3	4.78	30	51.95	52.05
5730	60.23	-2.2	2.63	0.48	35.483	24.751	2.63	-17.76	4.84	30	51.59	51.69
5750	55.19	-2.58	2.29	0.14	32.683	22.505	2.29	-19.57	4.87	30	51.12	51.15
5770	59.99	-2.22	2.79	0.64	35.593	24.392	2.79	-18.48	5.01	30	51.02	51.06
5790	54.83	-2.61	2.44	0.29	31.791	23.039	2.44	-18.22	5.05	30	51.08	51.16
5810	59.08	-2.29	2.72	0.57	33.514	25.562	2.72	-19.71	5	30	51.36	51.43
5830	58.92	-2.3	2.64	0.49	33.553	25.371	2.64	-17.59	4.94	0	51.65	51.66
5850	61.22	-2.13	2.74	0.59	35.056	26.161	2.74	-15.43	4.87	0	51.88	52.05



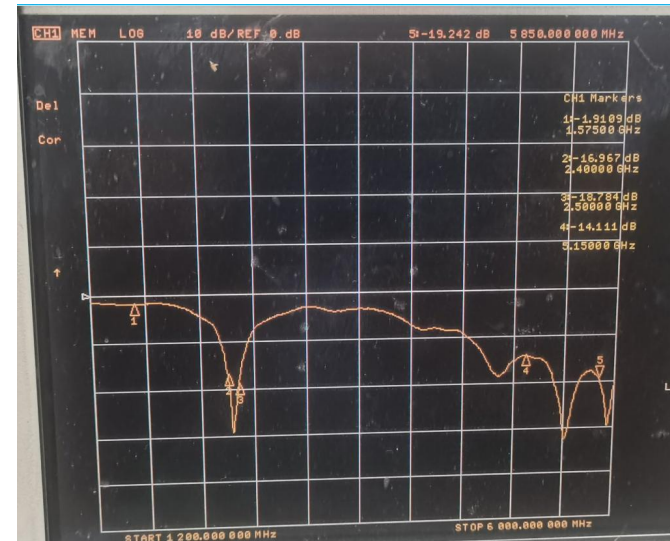
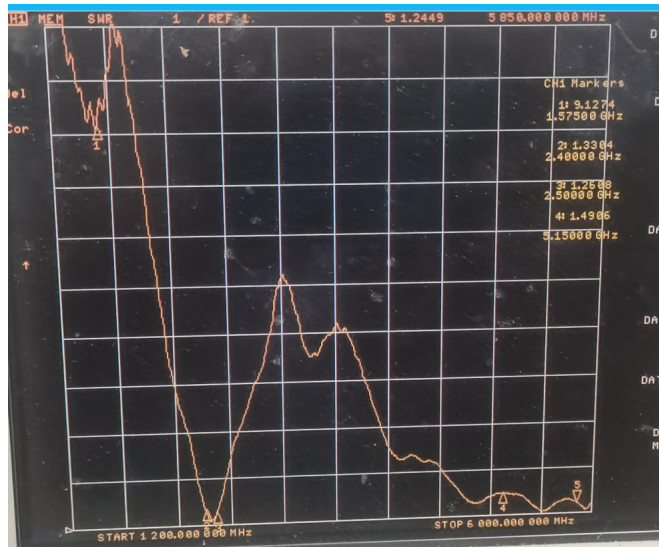
无源测试数据 Passive test data

ANT1 Direction of figure (5G)



无源测试数据
Passive test data

ANT2 S11-VSWR&Return Loss



Frequency (MHZ)	2400	2500	5150	5850
VSWR	1.33	1.26	1.49	1.24
Return Loss (DB)	-16.96	-18.70	-14.11	-19.22



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无源测试数据
Passive test data

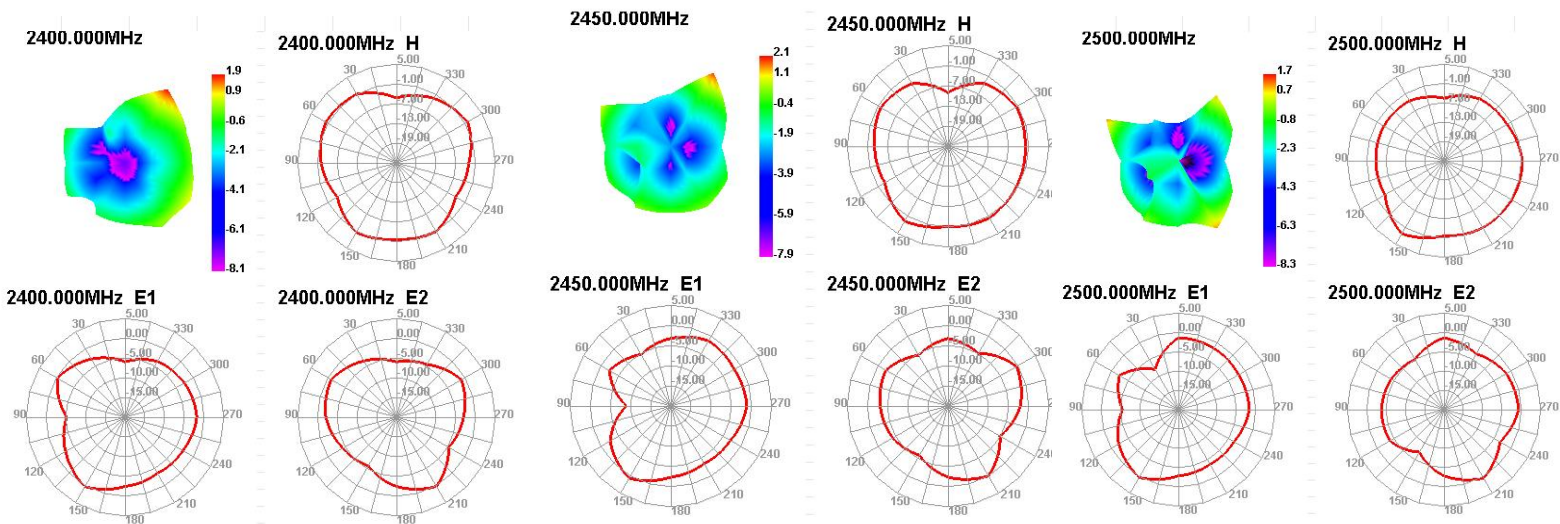
ANT2 GAIN&Efficiency-WIFI2.4G

Passive Test For WIFI2.4												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	63.35	-1.98	1.91	-0.24	33.082	30.266	1.91	-9	3.89	60	45.78	46.01
2410	60.66	-2.17	1.68	-0.47	31.2	29.456	1.68	-8.96	3.85	30	46.01	46.29
2420	62.94	-2.01	1.8	-0.35	31.964	30.973	1.8	-8.59	3.81	30	45.73	46
2430	62.71	-2.03	1.84	-0.31	31.724	30.991	1.84	-8.57	3.87	0	46.01	46.36
2440	62.5	-2.04	1.92	-0.23	31.777	30.72	1.92	-9.23	3.97	0	46.12	46.48
2450	63.17	-2	2.06	-0.09	32.114	31.054	2.06	-9.13	4.05	0	46.12	46.54
2460	63.6	-1.97	2.09	-0.06	32.254	31.344	2.09	-8.7	4.06	0	46.14	46.52
2470	64.92	-1.88	2.11	-0.04	32.848	32.067	2.11	-7.8	3.99	30	46.4	46.8
2480	65.87	-1.81	2.12	-0.03	33.298	32.576	2.12	-7.03	3.94	30	46.26	46.64
2490	64.36	-1.91	1.83	-0.32	32.456	31.901	1.83	-7.25	3.74	30	46.51	46.91
2500	61.77	-2.09	1.71	-0.44	31.231	30.535	1.71	-8.03	3.81	30	46.47	46.86



无源测试数据 Passive test data

ANT2 Direction of figure (2.4G)





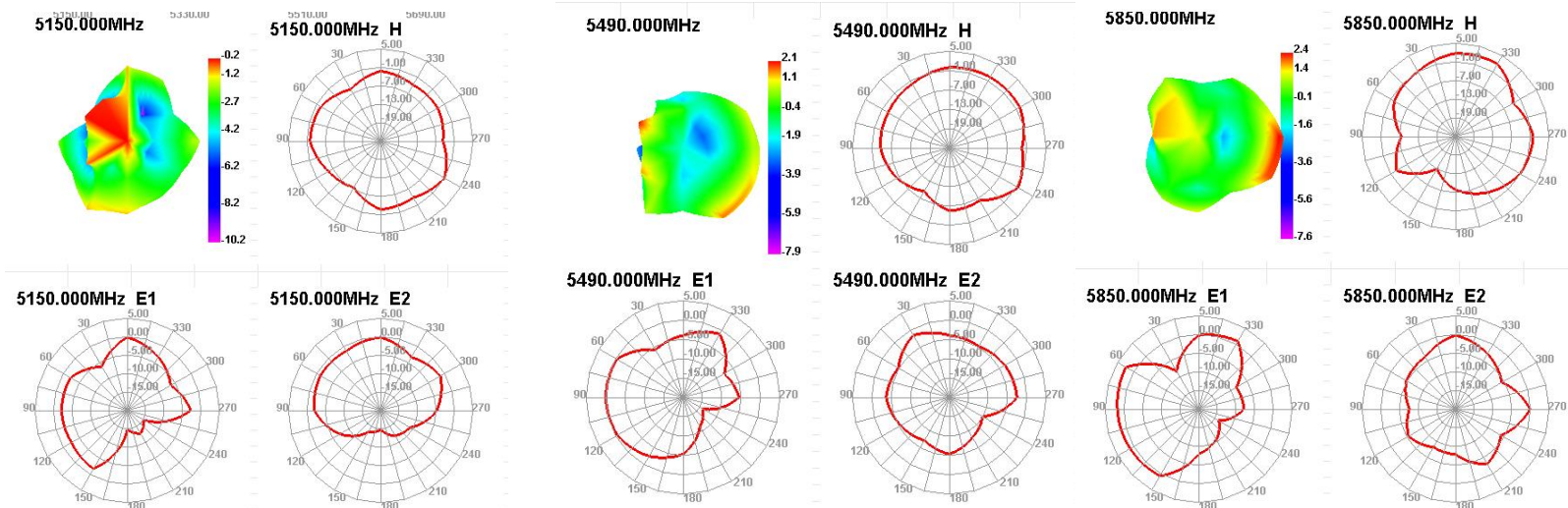
ANT2 GAIN&Efficiency-WIFI5G

Passive Test For WIFI5G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5150	34.61	-4.61	-0.18	-2.33	20.792	13.815	-0.18	-14.84	4.43	0	49.82	49.4
5170	37.18	-4.3	0.04	-2.11	23.035	14.146	0.04	-15.46	4.33	30	50.13	49.77
5190	37.96	-4.21	0.47	-1.68	23.628	14.333	0.47	-14.78	4.68	0	50.42	49.95
5210	43.59	-3.61	1.04	-1.11	26.48	17.107	1.04	-13.84	4.64	0	50.88	50.49
5230	40.38	-3.94	0.68	-1.47	24.184	16.192	0.68	-13.82	4.62	0	50.42	50.08
5250	47.19	-3.26	1.65	-0.5	28.499	18.692	1.65	-12.61	4.91	0	51.02	50.72
5270	47.77	-3.21	2.01	-0.14	29.004	18.768	2.01	-13.24	5.21	0	50.85	50.6
5290	50.78	-2.94	2.61	0.46	31.005	19.772	2.61	-13.96	5.55	0	51.34	51.12
5310	46.97	-3.28	2.39	0.24	29.061	17.906	2.39	-14.6	5.68	0	50.44	50.36
5330	48.44	-3.15	2.42	0.27	30.143	18.295	2.42	-15.46	5.56	0	51.08	51.01
5350	50.55	-2.96	2.28	0.13	31.002	19.543	2.28	-15.6	5.24	90	51.02	51.01
5370	48.35	-3.16	1.69	-0.46	29.223	19.125	1.69	-14.97	4.84	90	50.91	50.95
5390	44.07	-3.56	0.81	-1.34	26.684	17.387	0.81	-15.12	4.37	180	50.46	50.43
5410	52.86	-2.77	2.03	-0.12	32.335	20.529	2.03	-12.82	4.8	180	51.18	51.09
5430	48.63	-3.13	1.62	-0.53	29.689	18.939	1.62	-13.69	4.75	90	50.69	50.7
5450	53.76	-2.7	1.94	-0.21	32.418	21.34	1.94	-13.59	4.64	90	50.71	50.85
5470	51.23	-2.9	1.82	-0.33	30.487	20.743	1.82	-13.79	4.72	90	50.93	50.83
5490	53.11	-2.75	2.11	-0.04	31.538	21.568	2.11	-14.08	4.86	90	50.92	50.79
5510	53.82	-2.69	2.31	0.16	31.997	21.827	2.31	-14.92	5	90	51.18	51.16
5530	57.23	-2.42	2.78	0.63	33.966	23.267	2.78	-16.58	5.2	90	51.44	51.3
5550	59.44	-2.26	3.08	0.93	35.144	24.3	3.08	-16.45	5.34	90	51.89	51.76
5570	57.77	-2.38	2.91	0.76	34.22	23.547	2.91	-15.96	5.3	90	51.42	51.33
5590	59.15	-2.28	2.6	0.45	34.977	24.178	2.6	-16.15	4.88	30	51.71	51.76
5610	57.55	-2.4	1.94	-0.21	33.517	24.03	1.94	-17.96	4.34	60	51.17	51.22
5630	59.44	-2.26	1.84	-0.31	34.057	25.386	1.84	-20.64	4.1	90	51.78	51.77
5650	57.42	-2.41	1.94	-0.21	32.793	24.624	1.94	-24.16	4.35	60	51.47	51.55
5670	58.21	-2.35	2.34	0.19	33.123	25.085	2.34	-23.27	4.69	60	52.12	52.28
5690	58.13	-2.36	1.94	-0.21	32.605	25.521	1.94	-21.06	4.3	90	52.12	52.25
5710	56.08	-2.51	1.41	-0.74	31.064	25.016	1.41	-19.89	3.93	90	51.95	52.05
5730	61.6	-2.1	1.92	-0.23	34.17	27.431	1.92	-19.45	4.02	90	51.59	51.69
5750	53.53	-2.71	1.62	-0.53	29.887	23.642	1.62	-18.59	4.34	90	51.12	51.15
5770	56.8	-2.46	1.85	-0.3	31.757	25.041	1.85	-17.13	4.31	90	51.02	51.06
5790	50.96	-2.93	1.45	-0.7	27.965	23	1.45	-20.14	4.38	90	51.08	51.16
5810	53.98	-2.68	1.94	-0.21	29.401	24.581	1.94	-20.86	4.62	90	51.36	51.43
5830	50.98	-2.93	1.9	-0.25	28.116	22.86	1.9	-21.03	4.82	90	51.65	51.66
5850	54.16	-2.66	2.42	0.27	30.144	24.019	2.42	-20.59	5.08	90	51.88	52.05



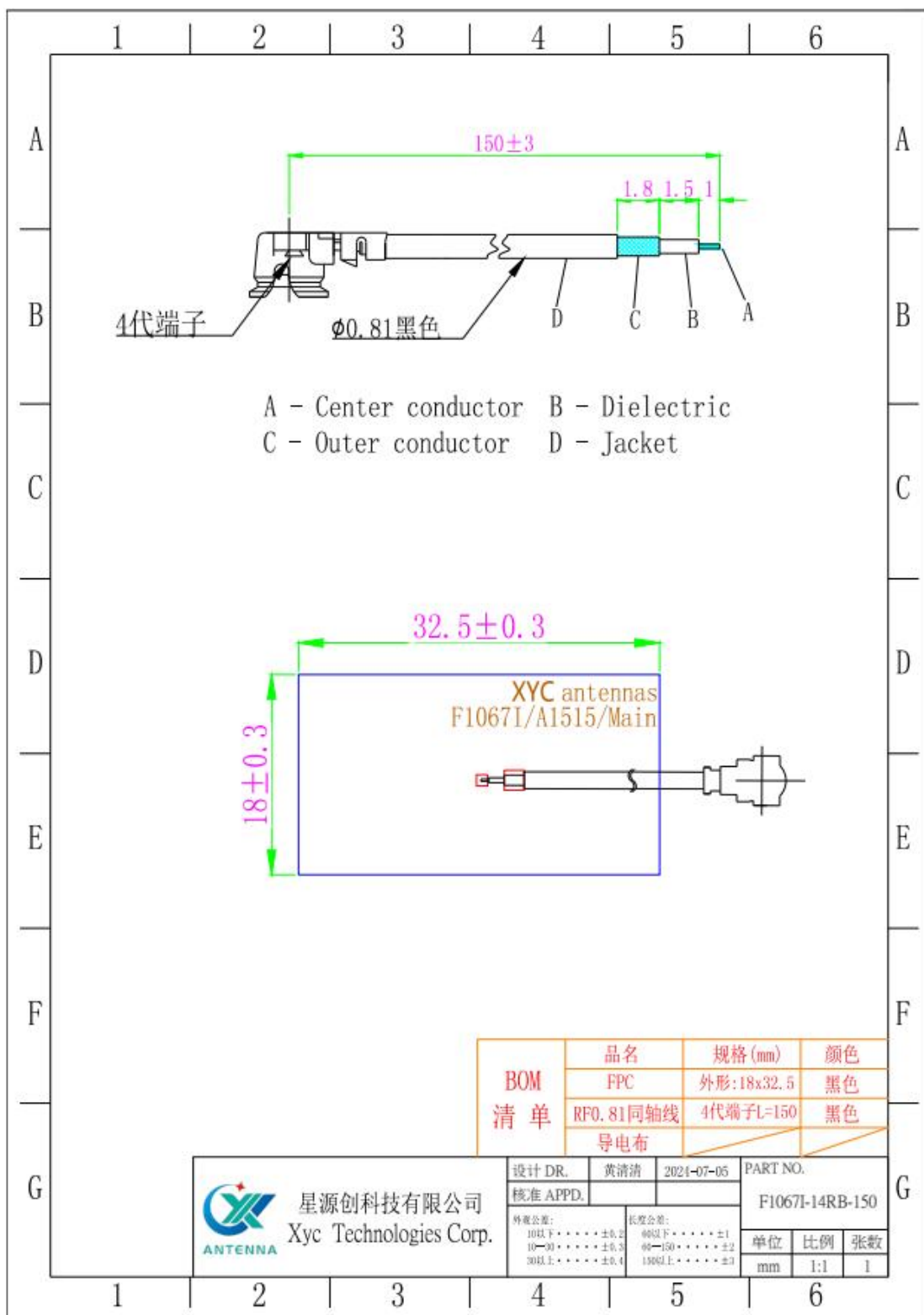
无源测试数据 Passive test data

ANT2 Direction of figure (5G)





Main Antenna Assembly



BOM 清单			
品名	规格 (mm)	颜色	
FPC	外形: 18x32.5	黑色	
RF0.81同轴线	4代端子L=150	黑色	
导电布			

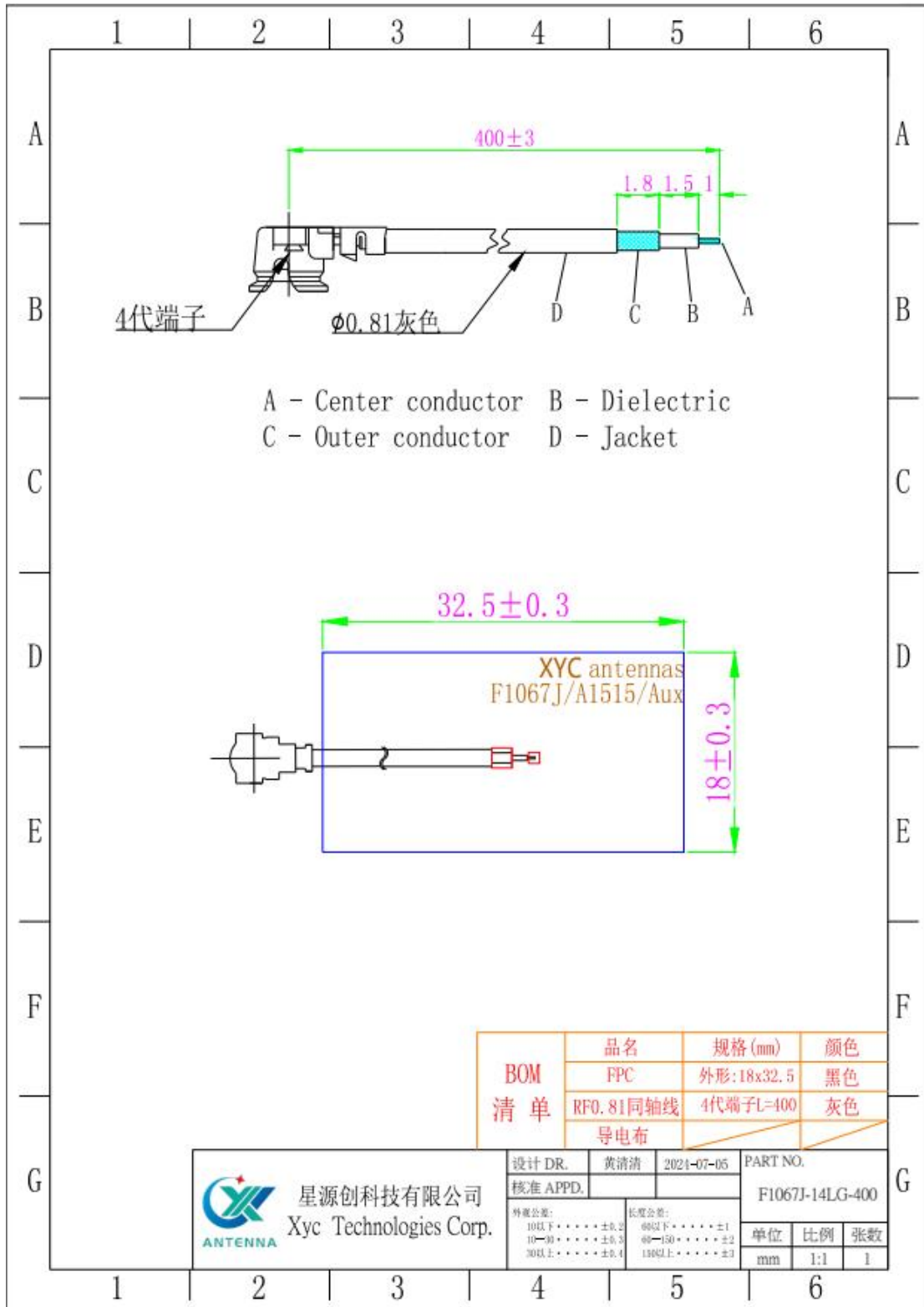
星源创科技有限公司 Xyc Technologies Corp.	设计 DR.	黄清清	2024-07-05	PART NO.
	核准 APPD.			F10671-14RB-150
外径公差: 10以下 ± 0.2 10-30 ± 0.3 30以上 ± 0.4	长度公差: 40以下 ± 1 40-150 ± 2 150以上 ± 3	单位	比例	张数
		mm	1:1	1

地址: 深圳市宝安区福永镇福海街道塘尾股份商务大厦1506

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Tel: 0755-82103639 QQ: 487580356 Email: Stephdeng_Vis@126.com

AUX Antenna Assembly



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合作 共赢

